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IN THIS ISSUE

THE REAL FRANCE
EMMANUEL DE MARTONNE

GEOGRAPHICAL TEACHING METHODS: CRITICISMS AND SUGGESTIONS
WALLACE E. WHITEHOUSE

UTILIZING CURRENT NEWS IN GEOGRAPHY TEACHING
O. D. VON ENGELN

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The JOURNAL *of* GEOGRAPHY

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THE REAL FRANCE*

By EMMANUEL DE MARTONNE
University of Paris

What is the real France? Before the war, it must be admitted, to most Americans France was Paris. If one visited Paris, one had visited France; if one thought of France, one thought of Paris: Paris was France. There is some excuse perhaps for this idea, for Paris is the center of a wonderfully unified state. From the earliest days natural roads converging on the Paris Basin have made for a unity in France. This unity is revealed in history. The modern states of Europe are young, compared with old France; at the beginning of the seventeenth century France was almost exactly what she is now. Later, the development of the system of metaled roads and more recently of railways converging on Paris has still further increased the centralization and strengthened the unity.

CONTRASTS OF LIFE AND SCENERY IN FRANCE

But unity does not mean uniformity: centralization has not meant the disappearance of contrasts. France is a country full of contrasts. There are indeed few countries in which scenery and peoples change so much in such short distances. A glance at the relief map suggests this. There is nothing to be compared with the great plains of North America extending over a thousand miles between the Rocky and the Alleghany Mountains; but everywhere is an alternation of hills and valleys, of plains and plateaus; or in the Alps and the Pyrenees lofty mountains crowned by glaciers, or in the region we call the *Massif Central* high lands

* The substance of a lecture delivered at Columbia University under the auspices of the University and the American Geographical Society, November 15, 1918.

with volcanic peaks and mesas, deeply entrenched canyons, and enclosed basins. But a mere statement of the physical diversities of the regions of France, diversities of relief, geological features, and climate, would very insufficiently convey an idea of the regional contrasts that exist.

The regional contrast finds its profoundest expression in human occupation, and there are few countries where human occupation is so closely adapted to the soil as in France. It is this fact that lies back of the great difference between French and American scenery. French people visiting the United States are surprised to see crowded cities separated by nearly uninhabited areas; while Americans, when they travel in France, cannot fail to notice how advantage has been taken of every opportunity for settlement. There is not a spring on the hills of the Parisian region without its village or at least its farm, nor an isolated hill without an old castle, an ancient village, or a little town. Every feature of the landscape is put to its appropriate use; forests on the abrupt slope, orchards on the more gentle slope, fields on the plateau, and meadows in the valley bottom, all in the process of utilization.

Such adaptation, of course, is not peculiar to France. You may find it in other countries of old Europe where men have been working and trying out every possibility for more than a thousand years; but in no other can the fact be so well observed, for French culture has behind it a long course of continuous development. Furthermore, modern France remains an agricultural state, with more than 70 per cent of rural population; England has turned into an industrial state, in which more than half of the population is crowded in the cities; and Germany, which has no such old culture, has likewise developed an extreme industrialism, with less than 50 per cent of rural population.

As it would be impossible to tell here of all the regional contrasts in France, I shall content myself with describing three very different regions.

Brittany: the Old Peninsula of the West

Brittany is the finest example of a natural region which has been for a long time a political province. She remained independent until the sixteenth century and was still considered by the

administration of Louis XIV as rather difficult to handle. During the French Revolution Brittany was the place where civil war was fiercest, and the rebels (*Chouans*) were not overcome for three years.

DIFFERENCES BETWEEN BRITTANY AND THE REST OF FRANCE

The people of Brittany still speak a language which is entirely different from French; it is more or less similar to Welsh and to the language of the ancient inhabitants of France before the Roman conquest. Of course, the Bretons are able to speak French also, all but some old women in certain remote parts of the country who do not know how to read.

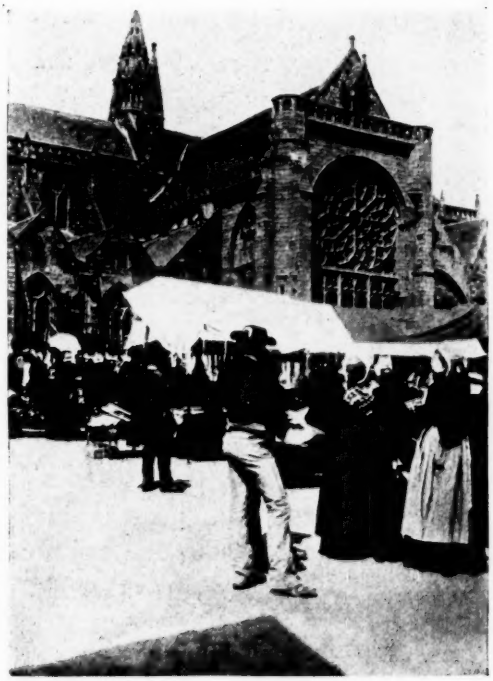

FIG. 1—Market scene at St. Pol de Léon, on the northern coast of Brittany.

Old habits and peculiar customs are still preserved everywhere. You can recognize the girls of Brittany in the streets of Paris and, if you are a true Breton, you can tell from what part of Brittany they came by looking at the finely embroidered caps they wear. If you go to Brittany, you do not even need to go into the country districts to see this. A walk in the streets of the little towns of Morlaix, Vannes, or Quimper, especially on a Sunday, will show you women wearing the queerest, sometimes the most beautiful, dresses and men with dark velvet ribbons on their hats, with large trousers, and small waistcoats. But it is not only by their costume that the people of Brittany differ from other people of France; the peculiar social and economic conditions of the country reveal themselves in its very scenery.

People from central and northeastern France are always astonished when they first come to Brittany. Instead of enclosed

villages they see only isolated farms scattered all over the country: instead of large fields extending far without enclosure, they see small tracts of land confined within lines of trees, which give the country a forested appearance although actually there are few woods. Conditions of property are peculiar also. Contrary to the rule elsewhere in France the peasants are not landowners; for the most part they are still under the control of the landowners. As a whole, Brittany is one of the least democratic parts of France; and on every political map, drawn from the results of elections for our House of Representatives, this situation is quite apparent.

The Physiographic Basis of Breton Peculiarities

Why are the people of Brittany so strongly differentiated from the other people of France?

In a great measure we may account for this differentiation in the peculiar geographical features of the country. Brittany is a peninsula and a rather rugged one, although there are no true mountains. The dissected shore line with many small islands, abrupt promontories, and narrow bays penetrating far into the land may be likened to the coast of Maine. And one who knows Pennsylvania and central New Jersey can visualize the alternation of flat-topped ridges and plateaus, with strongly incised gorges, and of rolling lowlands with broad valleys, which is the characteristic feature of the relief of the country. Brittany is an old land, built of strongly folded, more or less hard layers. Its ancient mountain ranges were completely worn down by erosion, then slightly uplifted, so that narrow valleys have been carved in the strong rocks, and broad ones in the less resistent.

The structure and relief of the rocks, their general impermeability, and the humidity of the country contribute to a general distribution of the water supply: everywhere are springs and little streams. They afford opportunity for the location of small farms. But the soil is comparatively poor and cannot, without fertilization, remain under tillage more than two consecutive years; it is necessary to alternate cultivation and pasturage on the same field. Associated with these circumstances are the wide extent of heath and also the less progressive character of the population. The last point offers one of the most remarkable examples of physio-

graphic control of human activity. Doctor Siegfried, a distinguished scholar, worked for several years in the Geographical Institute of the University of Paris on a "Political Geography of Western France." By mapping the conditions of property and the results of elections by counties he showed that the geological boundaries of the old *massif* of Brittany coincide exactly for some hundred miles with the limit of the region of large landownership and of the districts which elect the least democratic deputies.

This, however, is not the whole story: there are other parts of France having nearly the same geological past as Brittany that yet are more progressive. Brittany is also a peninsula. The last and most important event of her geological history is the downwarping by which the sea entered the lower valleys and formed these remarkably developed shore lines. The result was to make Inner Brittany more isolated. As a matter of fact, in economic and social development Inner and Outer Brittany exhibit the strongest contrasts. The Gaelic language has different words for these regions: Inner Brittany is *Arcoet,* in allusion to its wooded appearance (cf. Welsh *coed,* wood), and Outer Brittany is *Armor,* the country of the sea.

CONTRASTS IN THE PENINSULA: INNER AND OUTER BRITTANY

Arcoet is a poor country, sparsely populated, with almost no cities, with little farms, and with heaths covering most of the flat-topped heights. This is the true country of the *Chouans,* little known to the outside world, difficult of access. Before the nineteenth century there were no roads here, only a network of tree-enclosed lanes in which carriages would have stuck in the mud.

Armor is a much more developed country. The density of population is four or five times greater than in Arcoet. Here are nearly all the towns, and almost all are harbors, though they may be as much as fifteen miles away from the open sea. The climate is milder than in Arcoet, the soil sometimes better. Marine fertilizers can be easily used everywhere. Even in the seventeenth century wheat was grown here, while it was unknown in Arcoet. Early vegetables and fruits such as strawberries are today grown in many places.

Arcoet and Armor may differ from each other; they differ even

more from the other provinces of France. Mention has been made of the difficulty of communication in Arcoet, which was improved only in the nineteenth century. Armor was never so isolated, but it does not look toward France. It looks toward the sea. It was by the sea that it received, at the beginning of the Christian era, considerable accessions to its population from Wales and Ireland. And it was also by the sea that Irish monks came thither, bringing Christianity. Certain rather strange types that are found on the coast of western Brittany are believed to be of Spanish or even perhaps of eastern Mediterranean origin and to be evidence of an ancient coastwise trade from the Mediterranean to western Europe.

Both sections of Brittany, Armor and Arcoet, brought together in closer relation and bound to the rest of France by road and railway, make notable contributions to the welfare of France. Brittany still remains a country in which the population is increasing, by excess of births over deaths, although from Arcoet she sends to Paris many of her young men and women. Brittany also gives to Paris the products of her gardens and fields. From her daring fishermen come the greatest number of our sailors, and especially the crews of our warships. In the present war the regiments recruited in Brittany proved to be among the most inspired fighters for freedom and justice.

Champagne

We shall now look at a region with whose familiar name we have become even better acquainted during the struggles of the present war—Champagne. The limits of Champagne are roughly indicated by Rheims and the Argonne from west to east and by the rivers Aisne and Yonne from north to south. It includes different aspects; the most extensive is that of the "dry" Champagne, contemptuously termed *Champagne pouilleuse.*

The Champagne of the Chalk: "Champagne Pouilleuse"

To the traveler proceeding along the pleasant and fruitful valleys from either east or west, entry into these barren plains produces an effect of striking contrast. For uninterrupted distances the eye looks over a gently rolling surface: not a tree—

save perhaps some small recently planted pine woods—not a house breaks the view; grazing sheep are the only life. In absolute contrast to the scattered farms of Brittany is the close grouping of the population about the wells and springs of the valleys. It is the extreme porosity of the soft white chalky limestone that limits the sources of water and the distribution of population. Not only is the soil dry, it is also lacking in phosphates and potash; for the farmer it is an extravagant soil, greedy of fertilizer. As a commentary on its value, it is interesting to note that some old

FIG. 2—Morlaix, on the northern coast of Brittany. The town occupies a sheltered location at the head of tidewater. Steepness of the valley walls favors an alignment of the houses along the valley.

peasants still remember the time when the buyer of real estate could get for a fixed price, a strip of land extending as far as he could hear the voice of the seller.

THE CHAMPAGNE AS A BATTLE FIELD

In its open, treeless character the plain of Champagne recalls in miniature the vast plains of eastern Europe, and it may be noted that several of its plants are those of the Russian steppes. Here again is the strongest contrast with the unfrequented ways of Brittany. It is not difficult to understand why the Champagne has always been a battle field.

The first victory of the Marne was won by Marshal Joffre on the soil of the Champagne. The great French offensive of 1916, which unfortunately could not break the German front, was started

in the plain of Champagne. It was on the western border of the Champagne that Napoleon the First a century ago was able to check for a while the advance of the enemy and it was on the eastern border that the army of the French Revolution defeated for the first time the Prussians at Valmy, when they were fiercely driving on Paris. And so we might go back through history from the last decisive battle of the Marne to that decisive victory of 451 A. D. when the Huns under Attila were defeated by Aëtius on the plain between Chalons-sur-Marne and Troyes and western civilization was saved from the barbarian.

THE EASTERN BORDERS OF CHAMPAGNE: "CHAMPAGNE HUMIDE" AND THE ARGONNE

East of the *Champagne pouilleuse* the barren plains with their white soil give place to a succession of wooded hills with lovely valleys and orchards, luscious meadows, and numerous small villages. The change is coincident with the passage from the chalk to soft sands and clays and abundant water. This is the *Champagne humide*. It is the region where are found most of the oldest cities of Champagne. Of them we may specially note Troyes, famous for its fairs in the Middle Ages. Guarding the gap cut in the chalk heights by the Seine, Troyes is on the great highway from the Rhine Valley to Paris.

Towards the north of the *Champagne humide* appear the wooded heights of the Argonne. This more resistent mass is very broken and rugged, and it may be readily understood that such a region is a powerful barrier even in modern warfare. Ever since September, 1914, the western battle front has lain across the Argonne, the Germans holding the northern part while the French held the southern; and it remained practically unchanged despite the most desperate fighting. It was only when the combined French and American forces were able to drive the Germans out of the Argonne that the enemy had to abandon the Champagne entirely.

The distinctive features of the Argonne are reflected in the peculiarities of its inhabitants. Many are dependent in some way on the forest and the local industries to which it gives rise. Seasonal migrations are still characteristic: woodcutters engaged

in the forest from November to May go in June to the meadows for haymaking and in September to Rheims for the grape harvest.

THE VINEYARD COUNTRY OF CHAMPAGNE

If the Champagne is protected to the east by the barrier of the Argonne, she is closed to the west by a not less remarkable series of heights, the *Côtes de Champagne,* or the *Vignoble,* so called because here are grown the grapes from which champagne is made. Coming from the east, as you approach Rheims or

FIG. 3—A typical village in the Argonne.

Epernay, you cannot fail to notice the conspicuous heights. Some are still crowned with woods; but on most of them the vineyards extend nearly to the top. Everywhere villages are seen, some nestling in the valleys which incise the slope, some boldly set on spurs which command a wide view. There is plenty of water, and the soil is of the best quality.

This is also a rich and strategically important part of the Champagne. There are more inhabitants on this narrow strip of land than on the whole of the plain of the *Champagne pouilleuse.* The trade in its sparkling wines, which was only inaugurated in the eighteenth century, returns 30,000,000 francs to the country; but the cloth trade, which is much older, has contributed still more to the growth of such cities as Epernay and Rheims. Rheims, which guards a highway to Paris, is an ancient market. On the

western edge of the Champagne it stands at the contact of regions, a place where men early exchanged goods and ideas, a place of ancient wealth and culture. The martyrdom of Rheims during the war attests the strategical importance of the region where it stands.

The province of Champagne as a whole may be described as a central barren plain surrounded by heights. The towns are on the border; the country is in the center.

Lorraine: a Frontier Region

Now let us go further east and consider a still more complicated region, the old province of Lorraine. There is no better way to understand Lorraine than to go at once into her very heart—to the country round the city of Nancy, at the foot of those famous heights, the *Grand-Couronné,* defended by General de Castelnau in September 1914.

We have here one of the most striking examples of that perfect adaptation of man's work to the physical features which is characteristic of French scenery. Here are flat-topped hills, built of hard limestone layers and still covered with woods, the *Côtes de Moselle.* On their slopes, fields, orchards, and sometimes vineyards extend down to the valley bottoms where beautiful meadows alternate with bountiful wheat fields. About the middle of the slopes where the dry, stony soil changes to a damp clay are villages everywhere, their houses closely grouped around the old church. Characteristically the village will add to its name such a designation as *sous la Côte* or simply *la Côte.* At every point where a valley breaks through the wooded heights is a city; such for example is Nancy. Like the cities guarding the highways across Champagne, these play a strategic role. Nancy in particular is important as a meeting point of roads running north to south, east to west. On the isolated hills, standing in front of the *Côte,* are old castles or modern fortresses.

Industrial Activity in Lorraine

But the special feature that distinguishes the landscape of Lorraine from that of Champagne or Brittany is the way in which it has been modified by man's industrial activity. The smoke of the high chimneys, as well as the red color of the quarries appear-

FIG. 4.

FIG. 5.

FIG. 4—The *Côtes de Moselle* just above Metz. Though not within French territory (pre-war boundaries) the landscape shown here is typical of French Lorraine. The alluvial lands of the valley, the signs of industrial activity, the wooded slopes, the fortress-crowned heights are characteristic of the frontier region of Lorraine. (Photograph reproduced from the article Alsace-Lorraine and Europe, by Lucien Gallois, *Geogr. Rev.*, Vol. 6, 1918, pp. 89-115.)

FIG. 5—Winter floods in the valley of the Meuse near Verdun.

ing in many places at the top of the hills, remind one of the iron industry of Lorraine. Round Nancy meet all these features of agriculture, industry, and strategical importance. In some sections of varied Lorraine one or other predominates and may there be seen to special advantage.

West of the Côtes de Moselle is the clay plain of the Woevre, a purely agricultural region, excellent wheat land when drained and limed. Beyond the Woevre are the *Côtes de Meuse,* a counterpart of the Côtes de Moselle. One hardly needs to be reminded that this is the principal defensive line of France: here is Verdun.

From the Côtes de Meuse on a clear day one may see across the plain of the Woevre the smoke from the chimneys of the Briey mines. The same limestone layers which appeared on the top of the Côtes de Moselle make up the underground structure of the Briey region. In 1871 Germany acquired all the then known iron ore country of Lorraine. Fortunately the great deposits of Briey were not discovered until later; today they have the greatest output of the French mines.

The regional distinctiveness of Lorraine, like that of Brittany, is seen in her history. Lorraine, though not isolated as is Brittany, is a border country; she was for a long time independent of the French kingdom, but with more affinity to it than to the German states. As soon as she was incorporated, she proved to be an inseparable part of the French body. Lorraine is a country of ardent patriotism, as was shown in the disastrous war of 1870 and in the glorious war of 1914.

FRENCH REGIONAL LIFE AND NATIONAL UNITY

Brittany, Champagne, and Lorraine are only three of the many regions of France; but I think they will serve to show that regional life is a true characteristic of the country. It results from a long adaptation of man to the soil. It means love for the fields and the orchards, for the houses of the village and the old church, for the city and its monuments: it means patriotism. The real France—her activity, her efficiency, and her patriotism—can only be understood through a knowledge of her different regions—regions which keep their individual character and still are closely bound to France.

This regional life has so much intensity that more and more among political circles in France there is spreading a feeling of the necessity for decentralization. The movement implies that restrictions must be placed on the highly centralized economic and

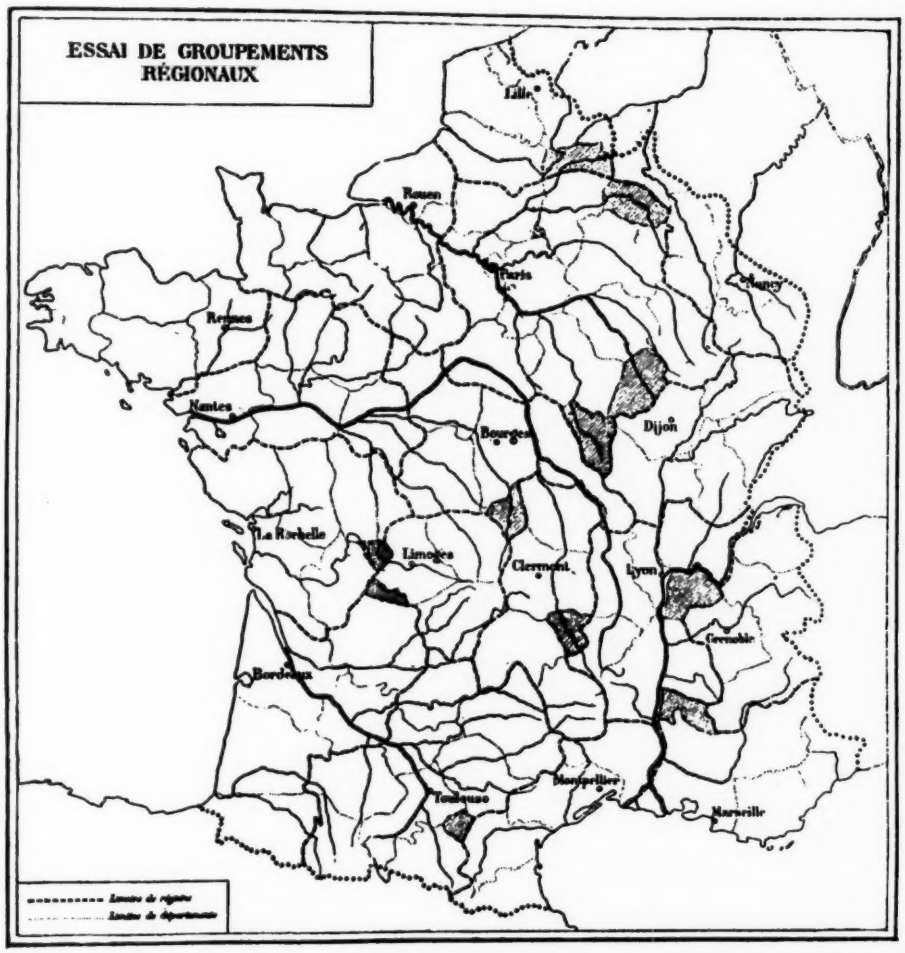

FIG. 6—Map showing proposed regional divisions of France (Vidal de la Blache, 1910). Boundaries of regions are shown by broken lines. Dotted lines show boundaries of *départements*. Shaded areas may be disregarded (they indicated cases where regional lines do not follow lines of *départements*). The regional capital is given in each case. The three regions described in the article should be noted: Brittany, with capital at Rennes; Lorraine, with capital at Nancy; Champagne, not a division in itself but forming the eastern section of the region of Paris.

political life by the establishment of regions of greater extent than our small *départements*.

The head of our modern school of geography, the late Paul Vidal de la Blache, worked out a plan for this new division of

France which is more or less related to the old provinces. Of course the new division cannot exactly correspond to the old provinces: it must take into account the conditions of modern life, the development of industry and of trade. This division is shown on the accompanying map. It has been adopted as the basis of a bill introduced into the Chamber of Deputies for the establishment of such regions. After peace has been concluded, this or some similar scheme will probably be carried out.

I think France is the only country in Europe which has actually taken steps toward an organized decentralization, though in Britain devolution into provinces has been discussed by geographers. The fact is significant. It means that French unity is so strong that there is absolutely no fear of breaking it; and it means that this unity is not inconsistent with a diversity of regional life based on the closest and fullest adaptation of man's work to the land he inhabits.

RELATIONS BETWEEN ECONOMIC AND GENERAL GEOGRAPHY

As a school subject economic geography has suffered not a little reproach as being the study of a mere catalogue of transient facts. But the fault is not inherent in the subject: if the accusation be just, it lies in the teacher's failure to make a right interpretation. Such failure may be avoided if economic geography is seen in its proper relation to the broader subject of general geography, of which, however important it may be, it is only an aspect.

BASES OF ECONOMIC GEOGRAPHY

The study of concrete geographical examples shows the regular reproduction of certain effects under the operation of certain causes; analysis of the effects enables us to arrive at the causes and to express them as geographic laws. Geography not only observes and describes but also explains and predicts. Inasmuch, then, as it touches economic facts it has a direct, practical application. It is worth while to reflect a little upon the broad and

simple bases on which rests the practical application—economic geography. These bases are clearly stated by A. Allix in an introduction to the Course in Economic Geography at the Technical High School for Girls established in the city of Lyons in 1917 (Géographie économique et géographie générale, *Bull. Soc. de Géogr. du Maroc,* July, 1918, Casablanca).

GEOGRAPHIC CONTROL OF PRODUCTION AND TRADE

Physical circumstances determine the various products of the earth; the resources of the subsoil are the result of geological happenings; soil and climate co-operate to give vegetable and, in turn, animal products.

The mere existence of these products is of little import unless they are made effective by man. In the utilization of natural products, the essence of economic geography, we see the collaboration between the earth and man.

Yet the utilization of the earth's products is not exclusively contingent upon physical conditions; it is dependent upon people. For lack of people resources remain untouched. Here again we see interaction; the exploitation of natural resources determines the distribution of population. As one geographer has expressed it, "the density of population map is the most direct expression of the actual economic utilization of the natural region."

Trade, no less than production, is controlled by general geographic principles. The foundation of trade lies in ways of communication. The trade route has at either or both ends producer or consumer according to material commodities whose existence, as already stated, is conditioned by physical geography and whose management and use is conditioned by human geography. The traditional routes of terrestrial commerce, the sites of trade centers and of ports were traced or defined by nature long before they were utilized and modified by man. Nor can man ignore the physical forces he meets on his maritime ways—currents, tides, winds, icebergs.

TWO INSTANCES OF GEOGRAPHICAL INFLUENCES

Where favorable circumstances of physical and human geography unite we find regions predestined to economic greatness.

As an example from our older civilization we may take Flanders. A rich soil, a climate suitable both for stock raising and industrial cultivations, a system of waterways, slow-flowing, regular, affording easy communications, a numerous and industrious population, and since the eighteenth century the exploitation of a contiguous mineral basin—these are some of the contributory elements. In our newer civilization we have the instance of the region of the Great Lakes, that "precious legacy of the Quaternary ice cap," possessed of great stretches of fertile soil on the one hand, bounded on the other by ancient *massifs*, rich in minerals, and traversed by the finest interior waterway in the world.

PRACTICAL VALUE OF GEOGRAPHY

Such regions exemplify the effects of a complex of causes; but, as we have said, geography can do more than explain—it can predict. What of other regions, new countries that are still little known? We look to geography to tell their economic future. It is worth noting that all great commercial peoples, from the Phenicians to the modern Germans, have been interested in geography and have put it to practical use. The great commercial expansion of Germany was achieved on the basis of the reports of geographers and explorers. Whatever we think of the political motives and methods involved in this expansion, we must admit the soundness of its physical basis.

There will be no query as to the usefulness of geography if we interpret it rightly as a geography of action, that not only collects and arranges facts but progresses from effects to causes; that takes note of promises and suggests plans for putting them into effect.

GEOGRAPHICAL TEACHING METHODS: CRITICISMS AND SUGGESTIONS[1]

By Second Lieut. WALLACE E. WHITEHOUSE, M.Sc., L.C.P.
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Methods of study in geography must be discussed with reference to the grade of work intended, that is either school or college, the former including both elementary and secondary school pupils. The secondary school division will consist of a considerable number whose official classroom education ends there, and a few working in preparation for further study in university or training colleges. This gives four groups: Primary, Secondary, Secondary Continuation, and College. Group 4 is usually Group 3 working in new surroundings, but the two are distinguished so as to emphasize the need for different treatment of the work in the two institutions.

DIFFERENT METHODS FOR DIFFERENT GROUPS

Several otherwise excellent schemes have not kept the grades sufficiently distinct, nor has sufficient distinction been drawn between the requirements of the different sexes, particularly in some of the grades; for example, geometrical surveying is a play game in certain boys' schools having well managed Scout troops, whereas it is difficult, unattractive work to many girls, who in turn would delight in other forms of survey, such as of local customs, folklore, games, and industries. Still another aspect of the necessity for differences of treatment of the work is illustrated by some analyses of ages and successes in an examination taken annually by nearly four thousand pupils. Mr. Fairgrieve calculated that ninety per cent of the sixteen-year-old boy candidates passed in geography at the matriculation stage,[2] and a high percentage of the seventeen-year-old girls at that stage. These were optimum

[1] Reprinted from *The Scottish Geographical Magazine*, Vol. 34, September, 1918. The article is based on a paper read at a meeting of the Geographical Association, London, January 5, 1918.

While this article deals with conditions in geography teaching in Great Britain it is in large measure of general applicability and should prove interesting and suggestive to teachers in American schools.—EDIT. NOTE.

[2] College entrance stage.

ages. My conclusions agreed with these, both then and subsequently; also an independent investigation suggested that fourteen and fifteen years were the optimum ages for the pre-matriculation examination of the same Board, but for neither examination was the percentage of the girls' successes equal to that of the boys' successes. This may be due (partly) to the character of the examination papers themselves, but another investigation showed me that in schools where boys and girls were taught separately at the matriculation stage then the percentages of passes at the optimum ages were not very dissimilar; but in mixed schools with candidates for the same examination the comparative percentages of successes (all ages) were 81 and 56 respectively. Allowing for the fact that mixed schools may be smaller and so possess less opportunities, there is evidently something else to be considered.[3] Another incomplete line of investigation deals with percentage successes obtained when the mixed classes are taught by women substituted for men called up for other work; no great change in *comparative* percentages has yet been noted, but it is too early to make definite statements.

In any case it seems established that even in the same grade differences of treatment may become necessary; even more so must there be differences of treatment in the different grades. A recent stimulating article by Sir Napier Shaw[4] emphasizes the necessity for different methods of teaching meteorology in schools from those employed in colleges. His conclusions for meteorology hold good for geography. This article deals chiefly with school geography.

College Work and School Methods

The work of the college is to sort out, classify, and link up geographical data—to make new discoveries in connection with such data, and particularly to test and to accept or reject geographical generalizations. It sometimes happens that a few of our research students will be forced to travel very slowly through being overburdened with material collected during their traveling —material which is not so much new in character as unrecognized

[3] These figures are based on the totals for three consecutive years, and each year differed but slightly from the total result. The conclusions relate only to the geography papers.

[4] *Quart. Journ. Royal Meteorol. Soc.*, January, 1917, p. 83.

in type by the collector. It therefore becomes necessary that instruction and education preliminary to the college stage should aim at being definite in character, and students should have a *sound* foundation on which to build.

Are all teachers satisfied with the earlier knowledge possessed by their pupils? Is there not a tendency for the college to blame the secondary school, and for the secondary school to pass on the condemnation to an earlier grade? Much of such criticism is justified, and some of it arises through confusing the grades. To attempt college work in the secondary schools may result in the neglect of legitimate secondary school work or in efforts to simplify work that in its essence must be complex—in either direction disaster lies. Apart from this, are we all satisfied with the progress made in geography, for each particular grade, during recent years? Of course, there *has* been progress, few subjects can show as much; equally, few subjects had so many opportunities and so much leeway to recover; but has the progress been well balanced? Little comment can be made with regard to progress of teaching methods in the University Colleges of Britain, for geography is insufficiently established yet. In some centers the higher possibilities are realized, but on the whole the standard compares somewhat unfavorably with, say, that of the great geography schools of France.

POSITIONAL GEOGRAPHY AND PLACE NAMES

In the schools there is more experience on which to base conclusions, and frankly here one notices matter for recent criticism, particularly in connection with map study.

A useful form of stocktaking would be to analyze the contents of the periodical commenced by a great geography teacher—Dr. Herbertson—for geography teachers, and see in which directions interests have moved. The Introduction to Part I of the *Geographical Teacher* was published in 1901, and two paragraphs by Mr. Douglas Freshfield are of special interest.

Par. 5. Our object is to enforce the place and importance of geography, *not only as a body of facts and proper names,*[5] but as an educational discipline and an element of general culture.

Par. 7. It is of national importance that the crass ignorance of carto-

[5] Italics not in original.

graphical methods in which most Englishmen are brought up should be done away with. The average educated man in this country cannot readily understand the symbols of cartography, or in plain English "read a map" [or in plainer English "spell a map."—W. E. W.]

The modern reading of Paragraph 5 frequently omits the word "only," and so reads "not as a body of facts and proper names." The catch phrase "lists of capes and bays" is frequently used as an excuse for gross ignorance regarding the positions of important places. The old methods will, fortunately, never be accepted again, but modern methods are arousing a certain amount of criticism too—and this by thinking people friendly to our cause. Examiners complain of this growing tendency to omit place names, frequently from ignorance, sometimes through mental laziness, and occasionally so as to render the work "modern." A personal experience may be used to illustrate the point: a script of matriculation stage was recently marked in which the pupil, apart from those in the question heading, used but two place names in nearly three pages of written work, and then referred to the great traditions of Spain as illustrated by its capital Lisbon (*sic*). Business men also complain of ignorance of place positions, etc., exhibited by young assistants who claim successes in "modern geography" work. Several teachers deride this bread-and-butter aspect, but for many finishing their school career in the elementary school it is an aspect to be considered. It is frequently remarked that one can always consult a gazetteer for this mere memory stuff. One can always consult a dictionary, yet it is advisable to know a few of the more commonly used words. The point should not be misunderstood; our geography for all grades must consist of more than place names and place positions, but it *must* include some of these, and there seems to be an unfortunate tendency to restrict unduly the number learned.

Dangers in Generalizations

The next point is even more serious, and one is treading on more dangerous ground, with a much greater risk of being misunderstood. Mr. Freshfield spoke of "not only as a body of facts but as an educational discipline." This question of educational discipline is a very broad one, and in elementary and secondary school work it is not, at times, as seriously considered as it should

be. There is too much spoon-feeding of the pupils, and there is too much striving for statements that are sometimes more interesting than valuable; there is a great deal too much hasty generalization accompanying the elementary work in the subject, and as various contributory studies take their turn in being fashionable correlatives, so the scope widens and the hasty generalizations are still further generalized. To mention only a few: there was the 1905 access of practical work, largely geometrical survey attempted with generalized instruments. There is no need to reopen the vexed question of the value of geometrical surveying to the geographical pupil, the pros and cons have been set out in detail elsewhere;[6] but whatever the teacher decides as to the work to be done by the pupil, it is essential that the specialist teacher himself should know something about the processes involved. Then came more or less practical climatology, with more generalization and a big mass of matter to unteach when the higher stages were reached. Next—the order is not intended to be chronological—we had geomorphological concepts with conflicting theories, simplified for school use but retaining an awe-inspiring vocabulary. Then one or two other treatments were experimented with and gained a certain measure of recognition; now we have a very great awakening of interest in the human side. Many will say "Surely this is geographical"; possibly so, and so were they all—all geographical or capable of being made so. The danger is not in the subject but in the treatment. Geometry, climatology, geology, geomorphology are none of them geography; on the other hand, neither is ethnology, nor anthropology, nor archeology, though the second group may sound more human. All must, of necessity, contribute to the full development of our subject; but, whereas in the more mathematical subjects the errors can generally be readily detected, this is not so in the case of the human-biological group. Human geography, for many reasons, is admirably suited for the making of sweeping suggestions; experiments in test of such suggestions are frequently difficult; suggestions made by our leading human geographers are often of fascinating interest though sometimes of little scientific value. The danger arises when these suggestions are circulated; the

[6] *Geog. Teacher*, Spring, 1915.

originator's tentative remarks become established truths; and on this foundation is built a many-storied edifice, tall enough to attract general attention; and until the whole thing topples over it is a very prominent landmark in some kinds of teaching. There is a danger that our pupils may be tempted to follow Taine's magnificent style with his oversimplified, oversystematized analysis. An article in this [Scottish Geographical] *Magazine* for June and July, 1913, deals with the "specific characteristics and complex character of the subject matter of human geography." The writer of the greatest French work on human geography is translated as saying: "I do not hesitate to state definitely that every truth concerning the relations between natural surroundings and human activities can never be anything but approximate; to represent it as anything more exact than that is to falsify it, it is to become anti-scientific in the highest degree."

This second point also should not be misunderstood. There *is* a place for these approximations in our geography work, less so in schools perhaps than in colleges; for the making of them, and particularly the using of them, demands a certain maturity of mind and a wide knowledge of auxiliary material, and even then they remain approximations.

MAPS, MAP SPELLING, AND MAP READING

More exact thinking on the part of elementary and secondary school pupils will follow an extended and more scientific use of maps. It now becomes necessary to deal with the expressions "maps are only a means to an end," "many material facts cannot be mapped," and "young children cannot understand maps." Like other generalized statements there is a considerable amount of truth in the remarks, but the danger is that the less experienced and the less interested teachers of geography may quote them in excuse for weak map work.

Of course "maps *are* only a means to an end," but they can be a strictly geographical means to a geographical end, a means capable of being utilized more frequently, and one is a little inclined to say that, for one grade of the work, a more desirable end in themselves than the one occasionally attained. Next, "many material facts cannot be mapped," therefore the corollary is that

map work means an incomplete study of our subject; true again, but for some grades our study will be incomplete in any case. This does not mean that one is advocating completeness in map study and a neglect of everything else. It would be better to change the phrase to "many material facts are not at present mapped." Our highest grade might with advantage turn its attention to the production of new maps. In addition to more cleverly applied increased mechanical skill in map reproduction, there has been a distinct improvement during the last few years in map contents, and, as has been well remarked, "maps afford us the surest outward and visible sign of a very real growth in the *science* of geography.[7] Military and civic authorities, teachers, and general public have demanded better maps; geography has always attracted enthusiasts, and the enthusiasm of our geography publishers is a very important and very pleasing fact.[8] Expressed demands have been met and will be met, but teachers must agree as to their requirements. With the growth of interest in certain studies, various government maps and charts have been made accessible to the general public, often accompanied by text explanations and descriptions, as in the case of the Geological Survey Memoirs and the Meteorological Office Charts, for the latter of which Sir Napier Shaw's recent booklets, "The Weather Map" and "Meteorological Glossary," are new features—cheap and authoritative volumes, using as few technicalities as possible; in short, ideal classroom books. Apart from such official productions, there is the possibility of devising new schemes for indicating facts distributionally, as, for example, in the suggested culture maps;[9] and a very successful attempt at mapping complicated anthropometrical characters has been devised by Professor Fleure.[10]

The third remark was that "young children could not understand maps." Here one is less inclined to agree without serious qualification. A start might be made with the "picture map"[11] of the character of those published by several weeklies, and young people take a great interest in "map spelling" from the picture.

[7] Sir Thomas Holdich, address to the Geographical Association, January, 1917.

[8] Teachers should note the article by Mr. George Philip in *Geog. Journ.*, Dec., 1917.

[9] Miss M. S. Elliott, *Geog. Teacher*, Spring, 1916.

[10] Article by Drs. Fleure and James, *Journ. Royal Anthrop. Institute*, 1916, pp. 35-153.

[11] Miss Winchester, *Geog. Teacher*, Summer, 1916.

Then there should be practice in modeling, and with reference to this possibly more use might be made of both the cruder ones and also of the more accurate ones.[12] For a few purposes distributions shown on accurate relief models can make a more striking appeal than ordinary cartographical work. From the "picture map" progress might be made to large scale plans and surveys, possibly in the future via aeroplane photographs and accompanying maps. An extremely useful article in this connection was published in the American *Geographical Review* for November, 1917; its photographic illustrations show excellently this half-way house between "picture map" and survey plan.

It is not intended to detail a list of suitable map-reading exercises. Just how many aspects can be treated must be determined by the individual teacher. For this article the term "map study" is a broad one and is intended to include some study of the globe (for the understanding of elementary mathematical geography, including map projections—for the teacher at least), atlas map study, with a hope that our British atlases will approximate still more to the best foreign ones, and that we shall soon possess atlases carrying out those recommendations reported by the special committee in 1915 to the British Association. Ordnance map study, British and foreign, on decreasing scales, and some reference to Admiralty charts, not only on account of extra symbols to add to the beginner's map alphabet, but also because depths with some pupils are more easily realized than heights. There will also be practice in the preparation and study of simplified maps and diagrams. Most teachers agree that the atlas and textbook are better when published separately, but the textbook can, with considerable advantage, contain enlarged or simplified or occasionally modified sketch maps to emphasize particular points; but here again one must repeat that generalizations are sometimes dangerous and not less so, but rather more so, when expressed cartographically; for examples see certain diagrams illustrating war operations. In the case of many textbooks an improvement would follow the omission of some of the sketch maps used; they are, in short, unsatisfactory models for the pupils to adopt.

[12] Closing chapter, *Handbook of Relief Model of Wales*, W. E. Whitehouse, National Museum of Wales, Cardiff, 1915.

PUPILS' ATTITUDES TOWARDS SKETCH MAPS

If pupils prepared more maps for themselves this alone would be a most effective check on some of the hasty generalizations, illogical arguments, and loose thinking that is being so severely criticized in several directions. Even in many schools where geography appears to be conscientiously taught there is a hesitancy on the part of the pupil to employ sketch maps. I wondered why this was so and decided to ask some of the pupils themselves. In the autumn of 1917 I sent round to twenty-nine teachers, with whom I had discussed various aspects of geography, a set of questions which I asked them to dictate to thirty pupils—ten from each of three different forms. Individual schools were not to be mentioned, and individual pupils were unknown (merely an indication of age and sex), and the pupils were encouraged to speak their minds freely. Accompanying the pupils' sheet of questions was a more elaborate one addressed to the teachers, so that their attitude towards maps could be taken in association with the pupils' answers. Twenty-eight returned batches of material of much personal and general interest, and I am deeply grateful to those of my fellow teachers who assisted with the catechism. Replies came from English, Welsh, and Scottish secondary schools and training colleges. One question addressed to the pupils was, "Why do *you* so seldom use sketch maps to illustrate your geography answers?" If teachers were satisfied as to the number of sketch maps used, then the question was not to be asked. In all but four cases the question *was* asked. Naturally the replies exhibited considerable variety, numbering as they did more than eight hundred in all. In general, omissions appeared to be due to lack of certainty as to positions, lack of time, lack of power to sketch; but a few answers seemed to suggest that sometimes we might gain by a little cross-examination of the teacher by the pupil.

A few pupils were satisfied that they did use sufficient sketch maps, and expressed themselves somewhat indignantly on the matter. Five interesting replies are given in the pupils' own words:

"I do; they gain marks, and introduce a little recreation into the examinations." (Girl, 17.)

"Lack of time, sometimes of knowledge, and they usually look absolutely different from what they are intended to be." (Girl, 16.)

"If we aren't told to do it, there is no sense in doing it." (Boy, 14.)

"I feel I cannot do them, and only put them in exams. because they might give me a few more marks." (Girl, 15.)

"If I write a great deal the examiner may take a fancy to my writing or style and have pity on me and give me a few marks, whereas if I draw a sketch map I should probably make the substance of it worse than the answer in writing, and the examiner would straightway refuse to look at it." (Boy, 15.)

Other questions gave equally quaint replies; *e.g.:*

"Outside of the class-room maps are of no use, only as decorations of some kind." (Girl, 16.)

"Contours are the most difficult part of map work, and I cannot do them very well. They require much thought, and there is more in them than appears on the surface." (Girl, 17.)

Space requirements forbid the further quoting of results of what I found to be a very interesting experiment.

INCREASED INTEREST IN MILITARY MAPS

Boys especially are now taking a new interest in maps, as something really serious and important, in which their elders, too, are interested. Teachers are advised to think out methods of utilizing this new interest, for not only is the human and other material at hand, but, for the time being, the topic will be discussed outside the classroom even more frequently than inside. Apart from scoutmaster work with Boy Scout troops in pre-war days, I have had but little personal experience in developing military map study in the secondary school, but a few points regarding military map work with a University College Senior O.T.C., and with the officers of a Welsh Division,[13] may be of interest to teachers desirous of helping their pupils in this direction. There are several differences in the schoolroom and military classroom approaches to map study. There is, of course, the obvious one that for the latter the instructor must have some knowledge of the work of the several arms of the service and their space requirements, and some knowledge of elementary tactics. Strategy, elementary or otherwise, is not demanded; this is the special gift

[13] "Military Map-reading Classes," W. E. Whitehouse, *Geog. Teacher,* Autumn, 1915.

of G.O.C.'s, newspaper correspondents, popular lecturers, and political leader writers.

But, on the whole, so much of the work runs parallel that it could be taken conveniently in the schools. Here is an extract of some interest. "Map reading is the daily bread, not only of the officer but also of the private, on whose initiative so much depends in modern warfare. The reading and use of what might, at some future date, serve as war maps must be unceasingly practiced, and it is of great importancce that the recruit should come up with some training in map reading. This preliminary work ought to be done at school by means of the map of the district. It is highly desirable from a military point of view that these should be uniform in type and that their symbols should correspond with those of the Ordnance Map. At the present day the power to understand and use the Ordnance Map is necessary for every soldier and civilian alike, and is closely bound up with national defence. It is suggested that a joint commission of teachers and military experts should report to the Survey Department." There is very little to alter in all that, but the interest lies in the fact that the speaker was Captain W. Stavenhagen of Berlin, at the Congress of German Geographers at Cologne in 1903. Without argument as to the morality of motive thus disclosed, or the advisability of undertaking military map reading in all schools as a preparation for military work, there are several advantages in treating maps from this new viewpoint. In the first place, there must be special emphasis on accuracy to the limits of our working material. Mistakes are serious. There must be such practice that map scales, for example, mean rather more than practice in arithmetic; a scale must *mean* something. To help in this direction, all sketch maps in textbooks, and for pupils' answers, should have compass points and map scale marked, either by separate diagrams or by addition of parallels and meridians. Pupils soon think of networks in mathematical terms, and that naturally introduces the next item. In military map reading there will be rather more elementary mathematics, so well known that it can be quickly and accurately applied.

Then there must be special skill in dealing with the third dimension on maps, not only a recognition of symbols, which is

merely spelling, but the ability to "see solid" which is map reading. In addition to its obvious value this "seeing solid" can be made interesting if well illustrated. Teachers should have available Lieutenant-Colonel H. G. Lyon's invaluable paper (*Geographical Journal,* March-April, 1914).

If possible some work with geological maps and diagrams should be included in so far as they deal with shapes and characteristics of land forms[14] due to different formations; but for a still further development of this section we must await the issue of a British parallel to Salisbury and Atwood's "Interpretation of Topographic Maps." Much of the preliminary discussion of the matter from one standpoint has been set out by Mr. Ogilvie in "Cartographic Needs of Physical Geography" (*Geographical Journal,* January, 1915). There is a very definite need for a good topographic atlas.

Next the military map-reading course demands more work with photographs and maps on the lines indicated by Mr. Allport in his "Aids to Map Reading" (*Geographical Teacher,* Autumn, 1913), but in addition to the sources mentioned there one can now use aeroplane photographs and maps.

There will be rather more protractor work with a high degree of accuracy—more position finding and naming by means of squares and co-ordinate cards. There will be work with maps on less usual scales, such as the 1:20,000 maps reduced from the 6″ Ordnance Survey Map with form line intervals of five meters. (When surplus copies of these maps become available they should prove most valuable for general school work. The sheets, apart from the microscopic letterpress in a few places, due to overreduction, are almost ideal outline maps.) Then there must be more work with instruments; a reading to 5° with a compass will not be "near enough."[15] This means somewhat expensive instruments, and the homemade or school-made type will be less suitable in this section of the work. Plane-tabling is also particularly useful, not only on account of the principles involved, but also on account of its fairly high degree of accuracy for rapid map

[14] See "Geography in relation to War," G. B. Mackie, *Scottish Geogr. Mag.,* November, 1917.

[15] An interesting exercise is to plot the error of position right or left due to an error of $x°$ along a route of y miles on any given bearing.

making. This is shown in recent work done in one of the zones of the armies by the Royal Engineers, where there has been much checking and correcting of military maps taken over from one of our Allies. Finally, it is advisable to include some panorama drawing. This, either from nature or from maps, is most valuable in teaching appreciation of land forms, and it is to be regretted that more of it is not attempted in ordinary school work.

But military map reading, when all is said and done, is not a complete course of geography, nor even a complete course of map study. We can possibly make use of some parts of it to improve our ordinary map work, but, to quote the closing remark of Colonel Sir Thomas Holdich in his Presidential Address to Section E of the British Association in 1903: "The methods of further improvement are simple: better teachers and better examining, and for both it is probable that we must look more directly to civil sources than the tentative efforts of the military schools."

UTILIZING CURRENT NEWS IN GEOGRAPHY TEACHING

Teachers are often urged to utilize current news and periodical literature as a point of departure in their work of instruction; the idea being that in this way some vitality and sprightliness can be infused into the dull routine of classroom recitations based on a single text. But any such wholesale and undiscriminating attempt to utilize news and magazine items in geography teaching can only result, like the use of purposeless collections of railroad folders, hotel advertisements, picture post cards, and similar miscellanies, in a general cluttering up of the classroom work, mentally and physically; and it may create so much of a diversion from the necessary systematic study as to become a positive detriment instead of a help.

PROPER METHOD OF SELECTION

On the other hand, news items do occasionally appear that may be used to make lessons pertinent and practical. As a guide in locating and choosing these, this general criterion will apply: the item must be of such nature that it stimulates the teacher's

interest in the subject—in this case geography—by supplementing such information as the teacher already possesses, or by enlarging his or her understanding of a given topic. Then it should be of such general interest that it can readily be brought to the attention and understanding of the pupils.

A "CONCRETE" EXAMPLE

The paragraphs reproduced below (from the *New York Times*, Nov. 22, 1918, p. 12, Col. 6), are a remarkably good example of this sort of item because the subject is of such wide interest and its content of such significance, in linking up the geography of the text with the geography of the working world, that all teachers should be stimulated on reading it.

The American steamship ***Faith***, the largest concrete vessel in the world, launched on March 14 on the Pacific Coast as an experiment in this method of construction, arrived yesterday with a cargo of sugar and docked at South Fourth Street, Williamsburg.

On May 22 the ***Faith*** left San Francisco for Seattle with a cargo of salt and copper ore. She discharged this cargo and took on lumber at Seattle and Portland for South American ports. She touched en route at San Francisco on July 17, and then proceeded to Mexico, Peru, and Chile.

The ***Faith*** took on a cargo of nitrate and was the first concrete ship to pass through the Panama Canal. She discharged the nitrate at New Orleans, then went to Cuba, and took on a cargo of sugar, which she brought here, consigned to the American Sugar Refining Company.

On the trip to Seattle the ***Faith*** ran into a seventy-mile gale and head seas, but, according to Mate Mathson, proved very steady. She made the trip from Cuba to New York in six days and ran into another seventy-mile gale south of Hatteras, which she weathered admirably.

The primary interest herein attaches to the first performances of the new type of vessel, the "stone" ship, whose construction has been so widely advertised that probably every intelligent upper-grade student knows something of the experiment. From this it is an easy step to a tracing on the maps of her voyaging, and thence directly to a pupil-and-class determination of the particular ports at which she stopped on each cruise, for these places are not named in every instance. Then one notes that she had a full cargo of one, or at most two, commodities from each port, and that she did not sail in ballast over any part of the course. In these facts are contained the complete economics of the

modern, bulk transport, ocean commerce by tramp steamers as distinguished from line vessels. If one may venture a pun, the *Faith's* voyages supply a perfect concrete example of the manner in which the world's goods are moved over the ocean highway—a matter on which most students have but hazy ideas. Next, as to the cargoes: why are they available in shipload quantities at one point and why wanted in such bulk at another? A large part of the geography of each of the several regions concerned could be made very real on this basis alone. Moreover, these facts could be taught rapidly, the information would stick, and the application to other regions and other products could be readily shown as study progressed; to say nothing of the probability that the student himself would in later practical life be apt to remember them and, from what had been learned in this way of the conditions of world commerce, would perhaps make practical conclusions applying to his own business. Finally, the storms the *Faith* encountered, where they occurred and why; the time required to make the trips as an index to the speed of ocean transport; the actual use of the Panama Canal as a functioning highway—all these matters afford further topics for discussion and comprehension; not for learning, by rote, mere geographical words and facts; but for acquiring a true understanding of the world we live in.

Admittedly this is an unusual item in interest and adaptability. Not many so good occur, and perhaps the best of all will be encountered by chance. It would be unwise to make systematic search for appropriate items. But when occasionally you come across something that arrests your attention in spite of yourself, carry that thing with you into the classroom: you will be able to make good use of it in your teaching.

O. D. VON ENGELN

GEOGRAPHY IN AN EDUCATION FOR DEMOCRACY

What should be the goal of education in our country? The Bureau of Education Bulletin (1918, No. 35), "Cardinal Principles of Secondary Education," defines it thus:

> Education in a democracy, both within and without the school, should develop in each individual the knowledge, interests, ideals, habits, and powers whereby he will find his place and use that place to shape both himself and society towards ever nobler ends.

The rapid evolution of American life during the last few decades has profoundly modified the activities of the individual:

> As a citizen, he must to a greater extent and in a more direct way cope with problems of community life, state and national governments, and international relationships. As a worker, he must adjust himself to a more complex economic order. As a relatively independent personality, he has more leisure. The problems arising from these three dominant phases of life are closely interrelated and call for a degree of intelligence and efficiency on the part of every citizen that cannot be secured through elementary education alone, or even through secondary education unless the scope of that education is broadened.

Since 1912 the Commission on the Reorganization of Secondary Education has been working on the responsibilities of the high school in such an education. The above-named report is a statement of the fundamental conclusions at which the commission has arrived.

For teachers of geography there is a special interest attached to the study of the first-mentioned of the three phases—civic education. Regarding this the report continues:

> While all subjects should contribute to good citizenship, the social studies —geography, history, civics, and economics—should have this as their dominant aim. Too frequently, however, does mere information, conventional in value and remote in its bearing, make up the content of the social studies. History should so treat the growth of institutions that their present value may be appreciated. Geography should show the interdependence of men while it shows their common dependence on nature. Civics should concern itself less with constitutional questions and remote governmental functions, and should direct attention to social agencies close at hand and to the informal activities of daily life that regard and seek the common good.

The conception of geography should be carefully observed—"the interdependence of men . . . . . their common dependence on nature." If this be compared with the definition of education in a democracy, the significance of geography cannot be overlooked. One aspect of geography in education for citizenship was discussed by L. O. Packard in the *Journal* for January under the title Geography and Reconstruction in Education. This article should be reread in connection with the above-named report. The report itself may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., for the sum of 5 cents.

GEOGRAPHICAL LESSONS FROM THE DAYLIGHT SAVING ACT

It cannot be denied that mathematical geography is regarded with disfavor by many teachers and pupils. Much of the trouble lies in the common method of treating the subject as an abstraction. Relate mathematical geography to living things, to human events, and much of the difficulty will be removed.

The working of the Daylight Saving Act gives an unusually interesting starting point for the teaching of the phenomena of the earth as a globe—the phenomena of day and night and the seasons. As a help in this the teacher should study the series of six diagrams published in the *Monthly Weather Review* for February, 1918 (see also *Geogr. Rev.*, Vol. 6, 1918, p. 449). These diagrams show the hours of darkness and daylight and twilight throughout the year and the relation of the ordinary hours of industrial labor in selected latitudes (every sixth degree of latitude from 60° to 30°). Two of the diagrams are reproduced here. The diagram for latitude 42° (Fig. 1) shows conditions typical of the area of densest population in the United States. The diagram for 60° (Fig. 2) represents conditions at the northerly limit of dense population in Europe, a limit, it may be noted in passing, that is marked by a line of big towns—Bergen, Christiania, Stockholm, Helsingfors, Petrograd.

The diagrams show graphically the economies in the conservation of resources and health that experience of the working of the Daylight Saving Act proved to us last summer. Nearly all the middle-latitude countries of Western Europe, as well as Canada and the United States, have adopted daylight-saving measures. The principle as a legal measure had first been seriously mooted in industrial England, though first adopted by Germany in 1916. France, England, Holland, Portugal, the Scandinavian countries, and Italy followed. Portugal was probably influenced by her relations with the Allies. Spain, in the same southerly latitude with its lesser difference between the lengths of daylight at the extremes of the year and with a large proportion of rural population, has not adopted daylight saving; nor have the countries of eastern Europe, where also industrial and urban development is feeble.

The diagrams have an interest apart from the immediate one of daylight saving. In their very graphic representation of the distribution of light over the temperate parts of the earth they carry suggestions of the human importance of this distribution. Note, for instance, the conditions obtaining on the sixtieth parallel where daylight varies from barely 6 hours at the winter solstice to 19 hours at the summer solstice (note also the long summer twilight). One might follow out a far-reaching train of human consequences. A single example will here suffice.

On the one hand, the long summer days, which hasten the ripening of crops, permit of cultivation towards Arctic limits. The limits of wheat growing in Canada are being pushed farther and farther north by the introduction of varieties of wheat that quickly arrive at maturity. In favored sections of the Mackenzie Valley the limit extends well beyond the sixtieth parallel (see J. F. Unstead: The Climatic Limits of Wheat Cultivation, with Special Reference to North America, *Geogr. Journ.*, Vol. 39, 1912, pp. 347-366; 421-446). This means extension of the limits of settlement. On the other hand, there is the problem of the long winter night. "It is clear that the length of the farming season is a large factor in controlling the return from the soil, the kind of work done, and the manner of doing it. It is not surprising to learn that the difficulty of keeping farm laborers through the

long winter has in the past been a handicap in western Canada, and that it was urged against the abolition of slavery in Russia

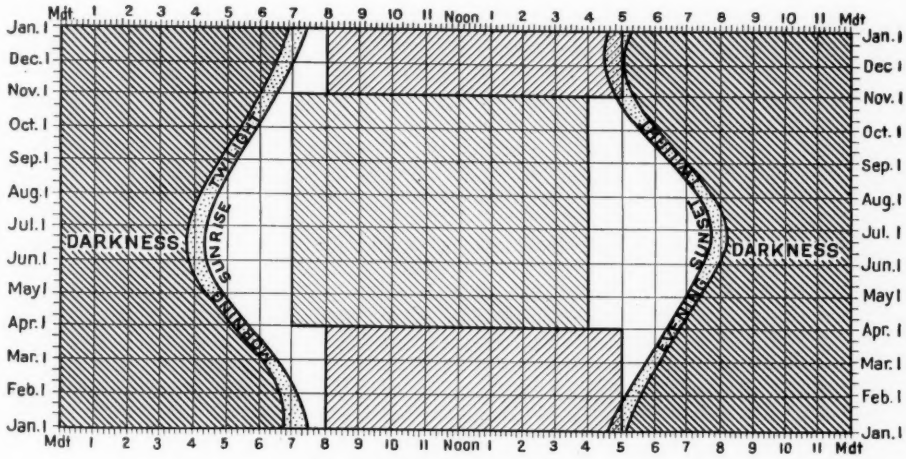

FIG. 1—Conditions in latitude 42°.

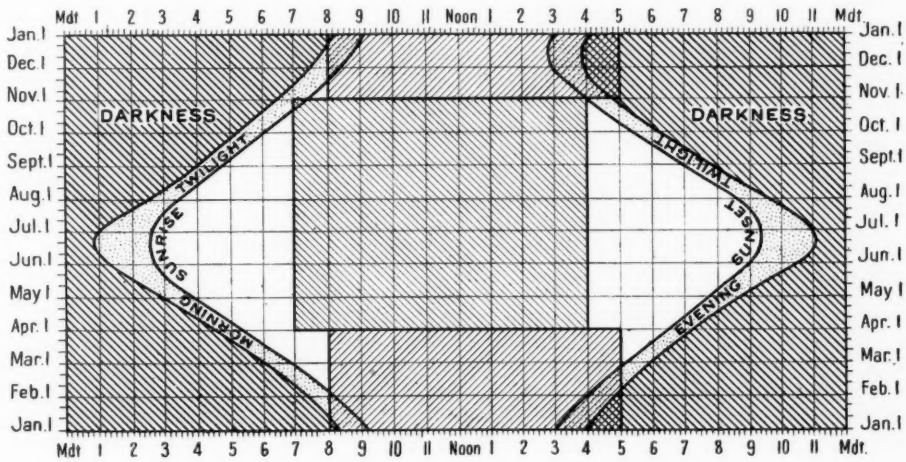

FIG. 2—Conditions in latitude 60°.

Diagrams showing conditions and effects of Daylight Saving Act in the latitudes 42° (Fig. 1) and 60° (Fig. 2). The ruled blocks in the period of daylight show the working hours between 8 A.M. and 5 P.M. ordinary time and "summer" time for the standard meridian in any given zone.

Fig. 1 was reproduced in *Geogr. Review* for Nov., 1918.

that it would be impossible, without some form of compulsion, to keep farm hands through the winter'' (R. DeC. Ward: Climate, 2nd edit., revised, G. P. Putnam's Sons, New York, 1918, p. 274).

IN CURRENT PERIODICALS

New Orleans as a Distributing Center. In 1840 as a result of the opening up of the Mississippi basin New Orleans attained the rank of fourth city in the United States. Since that date growth has been slow compared with that of the cities of the Atlantic seaboard and the Great Lakes. Today, however, it seems as though a new era of prosperity was in store for the Gulf port. New Orleans is favorably situated to take advantage of opening of the Panama Canal and our increase in trade with Latin America. With Latin America New Orleans has social and economic affinity: from the social point of view is the Latin heritage of the city; from the economic point of view it is a thousand or so miles nearer than any other port that can handle the prospective trade. Furthermore New Orleans is the natural outlet of a great and rich section of our country. An important step towards the improvement of its transportation facilities was taken with the establishment last September of a barge line between St. Louis and New Orleans. On the first trip the barges left St. Louis with a cargo of grain, shoes, hardware, clothing and provisions, bringing back on the return trip a cargo of cheap straw hats from Vera Cruz, Mexico, coffee from Brazil, and nitrates from Chile. Plans have also been launched for the formation of a league among the cities of the Mississippi valley to further trade with Latin America (*Board of Trade Journal*, London, January 9, 1919, pp. 37-38).

Transportation on the Magdalena River, Colombia. Like the Mississippi the Magdalena is a great artery running through the center of the country and providing a natural highway of trade. The Magdalena is over a thousand miles long, but, unlike the Mississippi, in its upper course it is a mountain stream and for two-thirds of its navigable course it flows in a valley flanked on both sides by mountains. During the dry season the river becomes low and the steamers, of the flat-bottomed sternwheel type familiar on the Mississippi, are frequently delayed by sandbars. It may then take three weeks to go from the coast to Bogotá, the capital. But even under the best of circumstances the journey is long and inconvenient. Foreign goods destined for Bogotá must be transhipped at least seven times. The estuaries of the Magdalena river are too shallow to admit seagoing craft and imported material unloaded at Puerto Colombia on the Caribbean goes by rail to Barranquilla for shipment on river steamers. At La Dorada, 560 miles up the river, goods are again transferred to the short railroad that circumvents the rapids in this part of the river whence they are again embarked on smaller river steamers to the point (Girardot) where the railroad from Bogotá reaches the Magdalena. (See the article by Hamilton W. Wright, *Scientific American Suppl.*, February 8, 1919, pp. 88-89.)

New English Port and Establishment of a Channel Train Ferry. The establishment during the war of a train-ferry service between France and England has recently been made public. On the English side a port was created for the purpose at the mouth of the river Stour midway between North and South Foreland. The new port, Richborough, connects with two French terminals, Calais and Dunkirk. Since 1916 a barge service has been maintained at these points, the barges being despatched without transhipment to the rivers and canals of France and Belgium. The Channel ferry has been in operation since February, 1918. Another train ferry has also been established between Southampton and Dieppe and Cherbourg (*Scottish Geogr. Mag.*, Vol. 35, 1919, p. 32, and *The London Times, Engineering Suppl.*, December, 1918, p. 251).

Geographic Factors in the World War. Under this title the Bulletin of the Philadelphia Geographical Society (Vol. 4, 1918, pp. 126-139) publishes a lecture delivered by W. E. Lingelbach as Director of the War Issues Course for the Third District of the Student Army Training Corps. The article urges the necessity for an appreciation of the physical and economic geography of Europe as the basis for an adequate study of the causes leading up to the war and the problems of reconstruction now before us. "Germany's decision to violate the neutrality of Belgium by a route eighty-five miles longer than the more direct approach to Paris from the German frontier, was dictated by the importance the German general staff placed on the topography of eastern France. . . . . All students of the war should realize that northern Serbia controlled the only routes from central Europe to the Near East, and to Saloniki, and that it was because of this, even more than because of her ambitions to build up a greater Serbia among the Western Slavs, that she was marked for destruction by the Central Powers. Germany's place in the heart of Europe, with frontiers touching seven different states, is a geographic fact that must be recognized even though we do not accept the claim set up by German military writers, that this of necessity required the maintenance of a large navy as well as an enormous army." From this illustrative introduction the author proceeds to point out some of the basal factors of general and regional geography involved.

GEOGRAPHICAL PUBLICATIONS

MATERIAL ON THE GEOGRAPHY OF EUROPE

The Geography of Europe: A Presentation of Some Aspects of European Geography for the Use of Members of the Students' Army Training Corps. Edit. by Ellsworth Huntington and Herbert E. Gregory. 96 pp.; bibliogr. Yale University Press, New Haven, 1918. 50 cts. 9 x 6.

The present need for more intensive and extensive teaching of the geography of Europe has already been urged in the *Journal*. The "Teachers' Manual of Geography," discussed in the February number, gives an outline of a course for the upper grades in the grammar school. Further aid may be found in "The Geography of Europe" issued under the auspices of the Division of Geology and Geography of the National Research Council. It is of some interest to note the circumstances under which this pamphlet was prepared. The inclusion of geographic instruction, especially of the geography of Europe, in S. A. T. C. courses disclosed the fact that provision for the proposed instruction was lacking in most educational institutions and that courses in the geography of Europe had been organized in less than ten per cent of the colleges and universities enrolling the S. A. T. C. Available textbooks, maps, and other apparatus for teaching also were found to be deficient. To meet the situation the above outline was prepared. Contributions toward it were made by many well-known geographers and economists in active government service. Prepared under the exigencies of the situation the pamphlet, as the editors admit, does not follow a thoroughly logical and well-rounded plan. It is not a complete geography of Europe, but in the exercises given and in the methods employed it should prove invaluable in suggestions for the presentation of some of the most important aspects of European geography. Attention may here be called to some of its most useful features.

1. *Suggestions for the use of type studies.*—"The method is to select some part of Europe as ideal or typical in some special respect. This place is used as the center around which the study of the whole continent may be grouped. The first step is to go to various reference books [a list of which is given in the pamphlet] and find out the facts suggested under the headings given below. These facts should be recorded in a notebook and, so far as possible, should be put in the form of tables or of brief, clear descriptions. After the main facts have been determined, the conclusions to which they lead should be stated. When the central or typical region has thus been studied the students may undertake a similar study of surrounding regions, or the study may be postponed until the countries are taken individually." An example is given in the treatment of Agriculture in Europe. French agriculture, because of its highly varied character, its intensive quality, its high development, is selected as the type. Study of the type—its physical

bases (climate, soil, relation to markets) and human consequences (the peasantry)—is followed by study of the agricultural changes that arise as one proceeds outwards from France; thus, after crossing the English plain to the northwest, "contrast the potatoes and pigs of Ireland or the oats and sheep of Scotland with the varied and well-balanced products of France"; or, going northward through the Netherlands to the Scandinavian countries, "note the increase in the importance of animals—dairying in Holland and Denmark, sheep and cattle in Norway"; or going south into Italy, note that "here irrigation and its effects form the dominant note"; and so on to cover the continent.

2. *Treatment of individual countries by study of special phases.*—This is in effect use of the project-problem method. The phases discussed are: The British Isles—(1) the insularity of Britain and its relation to the character of the British people, (2) England the leader of the world's commerce, (3) manufacturing industries and trade of Great Britain; France—(1) effect of double sea front, (2) expression of artistic temperament; Germany—(1) scientific agriculture in Germany, (2) relation of mineral deposits to industry and technical education; Belgium—the effect of location on war and commerce; The Netherlands—commerce and colonies in relation to climate and position; Norway and Sweden—the relation of diverse physical conditions of adjoining countries to industries and politics; Austria and Hungary—diversity of relief in relation to diversity of people and interests; Russia—(1) influence of isolation and monotony of climate and relief on habits and character of the people, (2) the resources of Russia in relation to other countries; Italy—contrast between north and south Italy; Turkey—Constantinople and the Straits as a geographic and political problem; Spain—(1) the influence of the peninsular position of Spain, (2) the influence of a high plateau.

3. *Problems and methods of study employed.*—The pamphlet was designed for use by older students; but several of the questions and exercises can be given to younger pupils, and others can be adapted by the teacher to meet requirements. Stress is laid on the desirability of tabulating results, as far as possible, or of presenting them in the form of short summary statements. Examples are given of which we quote the answer "as far as geography is concerned" to the question "Why did England become leader of the world's commerce?"

1. The island home of the British.
2. The central position of England in relation to the land hemisphere.
3. The many excellent harbors of England.
4. Rich deposits of coal and iron.
5. A climate which gives the people great energy.
6. The need of great quantities of raw materials for factories at home.
7. The great quantities of finished products to be distributed.
8. The need of contact with many colonies.

There is less reference to the use of the map for showing distributions. For this however the teacher should turn to

Notes on the Geography of Europe. By Mark Jefferson. 55 pp.; maps. Ypsilanti, Mich., 1917. 50 cts. 10 x 7.

This is a series of map studies accompanied by numerous exercises designed to bring out the features shown on the maps. The maps are in outline, and the student is supposed to color them. The series is intended to show the relation between man and nature in the geographical sense of nature's invitation and man's acceptance. As Professor Jefferson says, "Their study with the help of the text will help us perceive the meaning of what is going on in Europe at the time of writing." And he gives as illustration in point: "The plains of north central Europe are a geographical invitation to militarism, to the rise of Caesars, Napoleons, and Hindenburgs. The English channel is an invitation to the race that is set off from the rest of the plain by its waters to develop more assiduously the arts of peace."

Human distribution—population density, cities, cultural and racial characteristics—comes first, physical characteristics follow, and the series terminates with three historical maps.

During Professor Jefferson's absence in Europe the "Notes" may be obtained from Miss Mary Cawood, State Normal College, Ypsilanti, Mich.

Human Geography in Western Europe: A Study in Appreciation. By H. J. Fleure. 263 pp.; maps, diagrs., index. Williams & Norgate, London, 1918. 8 x 5.

This book is recommended to the teacher who wishes to pursue more deeply her own study of Europe. The reading is difficult, for the volume is packed with ideas; but the reader who carefully and patiently follows out the lines of the writer's thought will be rewarded by the inspiration that comes from its far-reaching and lofty conception of geography. For a review of the book see the *Geographical Review,* December, 1918, pp. 515-516.